

Claims

We claim:

1. A method for controlling a temperature of an emission control device receiving exhaust gases from an engine, the emission control device being coupled adjacent and downstream of an oxidation catalyst,
5 said method comprising:
adding a reductant to said exhaust gases; and
controlling a mixture of said exhaust gases and said reductant flowing into said oxidation catalyst to control a temperature of said emission control
10 device.
2. The method of claim 1 wherein said temperature is controlled while said mixture is rich of stoichiometry and NO_x is being removed from said
15 emission control device.
3. The method of claim 1 wherein said temperature is controlled while said mixture is rich of stoichiometry and SO_x is being removed from said
20 emission control device.
4. The method of claim 1 wherein said temperature is controlled while said mixture is lean of stoichiometry and said emission control device is
25 oxidizing particulate matter.
5. The method of claim 1 further including indicating when NO_x needs to be removed from said
30 emission control device.

6. The method of claim 1 further including indicating when SO_x needs to be removed from said emission control device.

5 7. The method of claim 1 further including indicating when particulate matter needs to be removed from said emission control device.

8. The method of claim 1 wherein said step of
10 controlling said mixture of said exhaust gases and said reductant further includes:
determining an exhaust flow rate of said exhaust gases from said engine;
determining an oxygen concentration in said
15 exhaust gases; and
determining said amount of reductant to inject into said exhaust gases based on said exhaust flow rate and said oxygen concentration.

20 9. The method of claim 1 wherein said step of controlling said mixture of said exhaust gases and said reductant further includes:
determining an exhaust flow rate of exhaust gases from said engine; and
25 throttling said exhaust gases flowing into said oxidation catalyst based on said exhaust flow rate.

10. A method for controlling a temperature of an
emission control device receiving exhaust gases from
an engine, the emission control device being coupled
proximate and downstream of an oxidation catalyst,
5 said method comprising:
indicating when one of NO_x and SO_x needs to be
removed from said emission control device;
adding fuel to said exhaust gases; and
controlling a mixture of said exhaust gases and
10 said fuel flowing into said oxidation catalyst to
control a temperature of said device when removing
said indicated one of NO_x and SO_x from said device.

11. A system for controlling a temperature of an
15 emission control device receiving exhaust gases from
an engine, the device being coupled adjacent and
downstream of an oxidation catalyst, said system
comprising:
a reductant valve selectively supplying
20 reductant to said exhaust gases responsive to a first
signal;
a throttle valve controlling flow of said
exhaust gases to said oxidation catalyst responsive
to a second signal; and
25 a controller operably connected to said
reductant valve and said throttle valve, said
controller generating said first and second signals
to control a mixture of said exhaust gases and said
reductant flowing into said oxidation catalyst to
30 control a temperature of said emission control
device.

12. The system of claim 11 wherein said emission control device comprises a NOx trap.

13. The system of claim 11 wherein said emission control device comprises a combined NOx trap-particulate filter.

14. The system of claim 11 further including a temperature sensor generating a third signal indicative of a temperature in said oxidation catalyst, said third signal being received by said controller.

15. An article of manufacture, comprising:
a computer storage medium having a computer program encoded therein for controlling a temperature of an emission control device receiving exhaust gases from an engine, the device being coupled adjacent and downstream of an oxidation catalyst, the computer storage medium comprising:

code for adding a reductant to said exhaust gases; and

code for controlling a mixture of said exhaust gases and said reductant flowing into said oxidation catalyst to control a temperature of said emission control device.

16. The article of manufacture of claim 15 wherein said temperature is controlled while said mixture is rich of stoichiometry and NOx is being removed from said emission control device.

